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THE JOURNAL OF SCHOOL HEALTH

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Vol. XIII NOVEMBER, 1943 No. 9

PHYSICAL FITNESS FROM THE POINT OF VIEW OF THE PHYSICAL EDUCATOR

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There has been a plethora of words and ideas regarding physical fitness during the last few months, and for that reason you may well ask yourself before reading this why those immediately concerned with the program don't *talk and write less and do more.* In answer to this more or less justifiable reaction of you who have had physical fitness in one form or another presented by physicians, physical educators, school administrators, coaches, army and navy officers, and sports writers, may I say that there are three excuses for yet one more exposition of it.

First, I was asked to write about physical fitness by a nurse who was authorized to do so by a physician. This in itself should be reason enough for any physical educator!

Secondly, I have more than a mere suspicion that there is still considerable confusion in the minds of a great many people as to what it's all about anyway, a confusion that exists because of the fact that so many different individuals have attempted to explain it. Most of these individuals have interpreted physical fitness solely in terms of their immediate interests and professions.

As the title of this article would indicate, I have been asked to do the same thing. I can't do it. And that is the third reason for this contribution. One must cast himself in various roles if he is to discuss adequately all the phases of a program so vital to young men and women today. At the risk of appearing presumptuous that is what I should like to do. Let us consider then the representative of those professions indicated above.

As a practicing physician I might quite logically interpret health in its relationship to physical fitness as freedom from disease and the correction of remediable defects. Such a connotation, however, would not be adequate. I would have to realize that the end objective goes beyond that degree of health as evidenced by freedom from handicapping body conditions and that it seeks to

establish positive, vigorous, and abounding physical health through the medium of strenuous body building activities. Thus the program would need my help and guidance as to the extent to which individuals might participate in strenuous activities without incurring serious injury; as well as a statement that a boy or girl is not sick. I would then feel it incumbent upon me to supply accurate information as to the reasons for excuses or for limited participation.

I would seek to cooperate with all others honestly attempting to fit boys and girls for the exigencies of war as I would expect them to cooperate with me. This may sound trite, but teamwork was never needed so badly as it is today. There can be no petty jealousies, fear of prerogatives, or selfishness.

As a physical educator, on the other hand, with a circumscribed horizon I might quite conceivably think solely in terms of muscle. Translating such thinking into action I would then set up a program of strenuous muscle building without giving due consideration to the health status of the individual. I might become so enthusiastic about commando exercises, obstacle courses, and combatives that little consideration would be given to another vital phase of physical fitness, namely, health instruction. I would then be as open to criticism as the health educator or physician thinking solely in terms of health examinations, correction of remediable physical defects, and health instruction. As a physical educator interpreting physical fitness, it should be incumbent upon me to extend my perspective to include the foundation upon which the program is to be built, the necessary health knowledge which students should acquire, and the ultimate goals sought as well as the immediate need for developing strength, endurance, flexibility, and speed.

Casting myself in the role of a school administrator, I would doubtless raise several questions to help me in orienting physical fitness to the rest of the school curriculum in the war effort. I might ask why, having had a program of health and physical education in my school for years, boys and girls aren't already fitted to take their places in the armed services or in industry. It would be a short-sighted question but, perhaps, a natural one. If I stopped to consider, however, that I had had mathematics, physics, home science, composition, etc., in my school for some time also, and yet radical changes in these courses were being adopted, I would understand that health and physical education has also found it necessary to reinterpret its program in relation to war.

Furthermore, the shackles of tradition might still make me stumble when it came to increasing the time allotment, extending the requirements, giving more credit, and buying more supplies and equipment. If I were honest in my analyses of these problems, however, I would recognize that the use of all the tools of learning acquired for the war effort revolves about the individual's physical capacity to use them. I would try to recognize that all departments in my school were as honestly and unselfishly concerned with preparing both boys and girls for the exigencies that lie before them as I myself. I would discount any intimation that any single department was seeking self-aggrandizement under cover of patriotism, and would balance the emphases to be placed on various programs to the best of my ability.

As a coach, I would attempt to see beyond the objective of a few individuals winning a game, and, without detracting one iota from the value inherent to the individuals participating, recognize that *opportunities must be greatly extended* in order to reach all boys and girls. As many as possible in athletics, yes, but realizing that a basketball team is composed of five players and a football team of eleven, and that when ten boys are playing a game of basketball and twenty-two are playing football a lot of space is being used for a few individuals. And again without detracting from the magnificent part that our trained athletes are playing in this war and also played in the last, I would recognize that it is a physical impossibility to train all of our high school boys as expertly as we have a few in the past. I would seek to extend my abilities and my personality gained through years of experience to a greater number, in order that more boys might serve better and have increased chances through sheer physical power to come home after the war.

As an army or navy officer, I would evaluate physical fitness in terms of the product, and not be greatly concerned as to how a high degree of physical fitness was accomplished. I would recognize that varying degrees of strength, agility, flexibility, speed, and endurance are required in different branches of the service. The bomber pilot needs different training than the jungle fighter in the Solomon Islands. Paratroops need different physical accomplishments than do tank drivers. The physical requirements of a crew on a submarine differ from those of the infantry. I would recognize, therefore, that schools and colleges cannot train boys and young men for expert proficiency in all of these various phases of military life. Neither the schools nor the young men themselves

always know just what branch of the service they will enter.

What would I expect then? I would expect young men free from handicapping defects trained in an all-round program of sports, games, conditioning physical activities, combatives, and swimming; young men whose physical fitness was unquestionable whom I could readily adapt to the type of warfare over which I had command. Anything less than this I would consider as criminal neglect on the part of school authorities.

I approach my last role with considerable temerity, but it must be cast, for the sports writer occupies a unique and strategic niche among those people deeply concerned with physical fitness. I believe that I would doubtless emphasize the contribution that sports and athletics make to the all-round fitness of the individual physically, mentally, and emotionally, but I would hesitate to say that the last World War was won solely by athletes, that this one will be, or even that the battle of Waterloo was won on the playing fields of Eton. I would recall that too many men have played heroic parts in past wars and are doing the same in this one who were never star athletes, and that there are men fighting in the fox-holes of Bataan, on battleships, on the African desert, and in the Arctic waters who are succeeding because of sheer guts and not because they were quarterbacks on a football team or centers on a basketball team. Yes, and that men have suffered and are suffering unbelievable hardships in rubber rafts on the Pacific who weren't trained to take that sort of punishment through playing baseball. In other words, I would try to see physical fitness in all of its different phases and to foresee what its attainment may eventually mean to men in all branches of the service, and not look to athletics as being the sole means of winning the war.

Looking back over these various roles, I realize that, up to this point, I have been thinking largely in terms of physical fitness as it concerns boys and young men. Lest I be charged with shortsightedness, let me hasten to say that as a physical educator again I am deeply concerned with physical fitness for girls as I would be as a physician or as a school administrator. The degree of my interest would doubtless become less as an army or navy officer, a coach, or a sports writer. I shall discuss the girls' program shortly.

Now, having looked at physical fitness from the points of view of individuals representing varied interests, I would like to present a functioning program as it operates in the Detroit public schools.

Requirements—The program is required of all high school boys and girls within the limitations imposed in certain schools by plant facilities. Twelfth grade students are programmed first, and are required to participate either 60 or 90 minutes daily, dependent upon the school facilities and organization. Lower grade students are for the most part scheduled to one 45-minute period daily, although in some schools a 60-minute period is required.

Basic Concepts—Good health is a prerequisite to strenuous participation in physical activities. This means freedom from disease and from handicapping physical defects. It also means a knowledge and practice of scientific health knowledge. Therefore, physical examinations with their attendant follow-up and a health instruction program are fundamental.

The Board of Health, the Wayne County Medical Society, and the Wayne County Tuberculosis Sanitorium have cooperated splendidly in carrying out the physical examination program, particularly in the case of upper grade students. The following steps have been taken:

1. All twelfth grade students were strongly urged to secure a physical examination from their private physicians. And 58% secured such examinations. Those students not able to secure such an examination due to indigency were given the opportunity for examination at the City Physician's office.
2. All students not examined through either of the above sources have been inspected by health education teachers for gross physical defects. Those found to have such defects have been re-examined by Board of Health physicians assigned to each high school.
3. The Wayne County Tuberculosis Sanitorium has arranged to X-ray all eleventh and twelfth grade students in each high school. A few schools have already been covered. The remainder are now being scheduled for this program.

The health instruction courses have been organized around five main areas; nutrition, industrial and home safety, home care of the sick, individual health, and community health. One period per week is required for twelfth grade students. In addition to this program, all twelfth grade students must take the Red Cross Standard First Aid Course before graduation.

Physical Activity Program Content—Contrary to some misconceptions that have arisen, this program *does not consist of*

calisthenics. The boys' program is organized around seven activities—football, basketball, swimming, military track, boxing, wrestling, and weaponless defense and offense. Three aspects of each of these activities are emphasized, namely, conditioning exercises, fundamental skills, and competition.

Football, basketball, boxing, wrestling, and weaponless defense and offense (or jui-jitsu) need no defining terms. Even a layman should understand that these activities *are not calisthenics*. Military track includes an obstacle course consisting of hurdles, fence, wall, ditch, maze, and cat walk. This course is standard for all high schools. It has been supplemented in many schools with a rope climb, travelling hand over hand on an overhead rope, running over a log jam, etc. Swimming includes instruction in underwater swimming, side stroke, breast stroke, elementary back stroke, surface diving, removing clothes in the water, swimming with weights on the back, life-saving, etc.

The program for girls includes swimming, conditioning exercises, sports and games, and some recreational activities. The work is individualized in so far as possible in order that it may be adapted to the varying demands made upon girls in the war effort. The boys' program is based on the premise that they are to join the armed forces soon after graduation. The girls' program is based on the assumption that they will occupy various places, some will go into the armed forces, some into industry, professions, mercantile establishments, and homes. The program therefore must retain enough flexibility so that it can meet these varying needs adequately.

Competitive Athletics—The competitive athletics program for boys has been modified to allow space and personnel for the general physical fitness program outlined above.

The intramural aspects have been emphasized to allow for participation in competitive athletics by a greater number of students. This program grows out of the conditioning work and knowledge of skills gained in the physical fitness program and complements it. Each high school has organized its own intramural program according to its own problems of school organization and facilities. Various programs have been set up. These include competition by houses, homerooms, classes, grade levels, or clubs. Each school has based its intramural competition on certain activities included in the physical fitness program, namely, football, basketball, swimming, and military track with the addition of playground ball. Further intramural activities are con-

ducted at the discretion of the individual school.

At the close of the intramural program in basketball and swimming, each school will select all-star teams on a grade basis for interschool competition as follows: *Basketball,* ninth and tenth, eleventh, and twelfth grade team (3 teams); *Swimming,* ninth and tenth, and an eleventh and twelfth grade team (2 teams). Four leagues have been organized instead of the two as formerly. Each league includes five schools in relatively close geographic areas. Schools will play once around within their own league.

This general plan for basketball and swimming has been adopted for two concrete reasons:

1. In order that major emphasis may be placed on the health and physical fitness of *all* students at this time, without the restriction of space and personnel that must prevail when a complete interscholastic program of indoor athletics is conducted leading to league and city championship in a number of sports.
2. In order that transportation problems may be reduced to a minimum through limiting distances between schools competing with each other. This applies to both competitors and spectators.

The spring and fall interscholastic program, because of the outdoor space available, may be extended beyond that of the winter program. This is contingent upon several factors. Chief of these is whether or not additional man power can be secured. Secondly, the winter program will be studied carefully to determine its effectiveness as now organized. Thirdly, the physical fitness program will have been in operation long enough by spring to judge more intelligently how extensively interscholastic athletics may be organized without jeopardizing the opportunities for all students to participate in the physical fitness program.

The girls' program of competitive athletics, both intramural and interschool, will be conducted to a limited degree. It is felt that under the present circumstances emphasis should be placed on the boys' program rather than on the girls'. Wherever space and time will allow, athletic programs for girls will be carried on in those sports and games which are basic to their health and physical education program.*

*This article has also appeared in the Journal of the Michigan School Health Association.

TUBERCULOSIS, A HEALTH HAZARD OF STUDENT NURSES

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Tuberculosis at one time was the leading cause of death among the general population. When the cause of tuberculosis was discovered and the mode of infection was learned, efforts were made to cut down that high mortality rate. As a result of health information, segregation of the active tuberculous persons, observation of contacts, improvement in economic condition and hygienic living, as well as pasteurization of milk and destruction of tuberculous cattle, the mortality from tuberculosis dropped from the first place in 1912 to the seventh place in 1930.

In spite of this drop in mortality, tuberculosis is still the leading cause of death among young women between the ages of 20 to 25 years. Many theories have been advanced as to the cause of this high mortality among women. It is said that maturity puts a greater strain on women, that child bearing undermines the health, and that women's work is of the indoor type which helps in the development of the disease. This had led to some studies of the incidence of tuberculosis among women. In the past few years studies of the incidence of tuberculosis among nurses have been also carried on in several hospitals in the United States and abroad, mainly in Sweden.

The student nurses, who enter the school of nursing today, are between the ages of seventeen and one-half to thirty years. The largest group is formed by those who are between the ages of eighteen and twenty-five years. They are in the age group in which there is a high tuberculosis morbidity and mortality. So, the student of nursing upon entering the school has two pre-disposing factors on hand, and those are the age and sex. Other factors come into being after the student comes into contact with the patient.

A great number of schools are reluctant to give any facts or figures as to the rate of tuberculous infections among their student body. However, they are realizing that the incidence of tuberculosis is higher than it should be, and are making efforts to minimize the morbidity rates.

Several years ago, almost all schools of nursing admitted their students to the school on the strength of the family physician's report on the health examination of the student. A complete physical examination was given after the student arrived

at the school to begin the nursing study. Today, if the student qualifies scholastically, she is given a complete physical examination by the staff physicians of the hospital school, a few weeks before admission to the school. This examination includes roentgen examination of the chest, complete blood count and sedimentation rate and urinalysis. Careful medical histories are taken in an effort to discover the possibility of contact with tuberculosis. In addition to this, special laboratory tests are given if there are any indications for them. If any defects, such as markedly enlarged tonsils, and carious teeth are present, they must be corrected before acceptance to the school is made.

As soon as students enter the school, they are given a tuberculin skin test. Some schools tuberculin test their students only when their chests appear suspicious on X-ray. Those schools which tuberculin test all their new students, repeat the tuberculin test within four or six months on the negative reactors. Both negative and positive reactors are X-rayed periodically. Frequency of roentgen examination varies with the schools. Some repeat it every four months or oftener if indications are present, some repeat it every six months and others once a year.

During the students' pre-clinical period, which lasts six months in most schools, efforts are made to teach them to protect themselves against the disease. In the short course of Personal Hygiene they are taught the cause, as well as signs and symptoms of tuberculosis infection. An effort is made to conserve their health by teaching them the necessity of plenty of rest, proper diet, and outdoor activity. Weight reduction by dieting is strongly advised against, unless taken under the direction of the physician. Health clinics for nurses are held. The students are encouraged to attend these whenever any medical attention is needed.

Late in their pre-clinical period, or immediately at the beginning of it the students are taught isolation and aseptic technique. Knowledge and use of isolation and aseptic technique not only prevents the spread of disease from patient to patient, but also protects the nurse herself.

It is in the clinical period that the morbidity rate in tuberculosis increases tremendously. Some maintain that the incidence of tuberculosis is higher while the students are on duty on the tuberculous service. Others tend to be of the opinion that the incidence is greater when students are working on medical and surgical services. Pollack,[1] in his six-year study of tuberculous infection among student nurses, in the Jersey City Medical Center,

(1) Pollack: Hospitals, Vol. 16, (Jan.) 1942.

found that a greater number of them acquired the infection before the assignment to the tuberculous service. Plunket[2] and Mikal have made a study and found that "40,000 unrecognized cases of pulmonary tuberculosis are present yearly in the general hospitals throughout the country." This would then, explain why more tuberculous infections occur on the non-tuberculous services. On the tuberculous ward the student nurse is aware of what she is dealing with. She is protected to some extent, by wearing of mask, gown, and by frequent scrubbing of hands.

Myers[3] is of the opinion that more tuberculous lesions in the chest occur while or after the students have worked on the tuberculous service.

Regardless on what service the incidence of tuberculosis is greater, the fact remains that the rate of infection is high among student nurses as compared with other occupations. In the 4,126 white student nurses listed in the United States there was 3.56 per cent of tuberculosis noted. The rate of admission to the sanitarium was 0.15 per hundred from the normal school as well as from the general female population (ages 20 to 24 years), as compared with 1.44 per hundred from schools of nursing.[4]

Pollack[1] noted in his study of 699 student nurses that the incidence of clinically active tuberculosis, contracted during the period of study of nursing was 1.85 per cent, while the incidence among college women of the same age was 7.5 per thousand students.[5]

It was also noted, by Pollack, that upon admission to the school, the percentage of positive reactors to tuberculin was much less than upon graduation. In 1934 there were 72 per cent positive reactors while on graduation, in three years, there were 95 per cent or an increase, above the starting rate, of 32 per cent in three years. Riggins[6] and Amberson found that in the Bellevue Hospital on admission to school there were 57 per cent of reactors, while on graduation there were 96 per cent. At the Philadelphia Hospital 57 per cent of students reacted to the tuberculin upon admission, while 100 per cent reacted before graduation.[7] This seems to indicate that tuberculosis is a serious occupation hazard in nursing.

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(2) Plunket and Mikal: Hospitals, Vol. 17, No. 4, (Jan.) 1943.
(3) Myers—Arch. of Int. Med. 59, No. 1, 1937.
(4) Rosenthal, S. R. Hospitals, Vol. 17, No. 4, 1943.
(5) Ferguson, Lee: Jour. Outdoor Life, 31: 299 (Aug.) 1934.
(6) Riggins and Amberson: Am. Jour. Nursing, 40, 1137, 1940.
(7) Hethrington: Hospitals, Vol. 16, No. 4, 1942.

The fact, that figures show that morbidity is higher among student nurses than among other groups, may be due to the method of case finding. This frequent periodic X-ray of chest will cause an apparent rise in the morbidity rates. In the general population, many persons develop minimal lesions which heal in the course of time. These give no rise to symptoms. Because at the time, no X-ray of chest was done, the infection escaped notice, while in the school of nursing, because of the frequent periodical X-ray more of these minimal lesions are picked up and diagnosed, thus increasing the reported rate of incidence of tuberculosis. However, there are many schools in existence which do not X-ray the chest as frequently as those in which the studies have been done. There are those, too, which deny any incidence of tuberculous morbidity among nurses.

Heinbeck,[8] of Oslo, Norway, believes that tuberculosis can be prevented in nurses by the use of BCG vaccine. The students who react negatively to the Pirquet Test are vaccinated with the bovine type of bacillus which has become avirulent through 13 years of culture on a potato-glycerin medium. In the recent years, vaccination with the Bacillus of Calmette and Guerin is made compulsory in the nursing schools of Sweden. The result of this compulsory vaccination is, that in 1940 sixteen students required treatment for tuberculosis as compared with 30 of the year before.[4] These persons believe that vaccination with BCG vaccine renders the student nurses immune to the disease.*

What Can Be Done to Decrease the Incidence of This Disease.

Anyone who is familiar with the program which the student nurse follows will understand why the incidence is high. We must not forget that two predisposing factors to tuberculosis are present, as mentioned before, even before the student comes in contact with the tubercle bacillus, and that is age and sex. Soon after the clinical period is begun, her mind and body become overtaxed by the heavy school load and practical work. If she is receiving her clinical experience in a hospital that is staffed by graduate nurses, her health is not apt to be undermined. If, however, she is obtaining her clinical experience in a hospital which depends solely upon the student help, she is more apt to develop clinical signs of the disease. In such institutions the students do night duty. The result is that, frequently they do not get enough sleep, due to external influences, such as noise and light, as well as difficulty in

(8) Heinbeck: Archives of Internal Med., Vol. 41, No. 3, 1928.
(*) Numbers too small to have much statistical value. Ed.)

becoming accustomed to the change in sleeping hours. Frequently these girls, in addition to working eight hours spend two or three hours in classes. However, at present many schools are including classes in the eight-hour day. Some schools, to ease the strain and stress of working and attending classes, have developed a so-called block system, in which the students spend a number of weeks or months devoting their entire time to study. After the classes are completed they are sent to hospital wards for their clinical experience. At this time no class work is done. After several weeks or months of this, the block is repeated. It would be interesting to know what the incidence of tuberculosis is in such nursing schools.

Whatever system of classroom teaching is employed, one thing should be kept in mind, and that is, to ease the student load. Because these girls are subjected to an environment in which disease prevails, their working day should not be over eight hours, including class work.

A hospital which takes on the responsibility of teaching the student nurses, should provide graduate nurse help. No student should be allowed to work night duty more than a few days at a time. When night duty is done, means should be taken to make the environment conducive to sleep and rest.

In an effort to familiarize the student with the various diseased conditions, their treatment and nursing care, more stress is placed on the negative health. Before any abnormal conditions are presented to the student nurse, the positive and vibrant health should be taught first. The course in Personal Hygiene should be taught in such a way so as to enable her to apply to her own person what she learned.

A graphic weight chart should be kept on every student nurse. If loss of weight exists, studies should be made as to whether the weight loss has any relation to the service on which the student or students are on duty. A check can then be made, and the cause of weight loss eliminated.

Efforts should be made to get the students to participate in recreational activities. It was learned that students do not like to have any recreational activities planned for them. They fail to attend these, their chief excuse being that they are tired. If the recreational activities, preferably of the outdoor kind, are allowed to be planned by the student body, more interest is shown and better participation results.

Health clinics for the student nurses should be held at the

same hour every day with a graduate nurse and a physician in charge. Students should be encouraged to attend these whenever any indications manifest themselves. A special place, or an infirmary should be set aside for them, where they can go when not feeling well. Sending them to the dormitory is not a good practice. Too many friends run in to visit them, thus preventing them from resting. Admitting the students to hospital wards is not a good idea either. Students do not like it. Because of fear of being admitted to the hospital, they frequently fail to report any ill health to the clinic, which sometimes results in serious conditions.

All students and personnel should have a complete physical examination with an X-ray of chest every six months. If the student should become infected, and should develop a lung lesion, early detection and treatment will insure a better chance of recovery, whereas, if the student continues to work and continues to be subjected to further infection, her bodily resistance is greatly lowered, with the resultant enlargement of the lesion and poorer response to treatment.

Newly admitted patients should have a chest X-ray, as well as careful history and tuberculin test. The use of the new, small X-ray film could perhaps solve the problem of high cost of ordinary X-ray. The use of this case-finding method would help to segregate the unsuspected tuberculous patients and minimize the chances of student nurse infection with tuberculosis.

The Jersey City Medical Center began to fluoroscope and X-ray their new patients more frequently than before. As a result of this, they were able to detect and isolate those who had the disease and did not know it. The study by Pollack[1] showed that there resulted a definite decrease in positive reactions to tuberculin in student nurses at the time of their graduation. In 1937, there was an increase of 32 per cent of positive reactors upon graduation over the rate at admission, while in 1940, after the segregation of a great number of patients, the increase of positive reactors was reduced to 16 per cent at the time of graduation.

Hospital personnel, who in any way have contact with the tuberculous patient, should be taught how to prevent infecting themselves or carrying the infection to others. Student nurses should be taught to instruct the tuberculous patient how to use sputum boxes and how to care for them. Proper facilities should be provided for effective destruction of the bacilli. Student nurses should be protected by a cap, gown, and mask while caring for

these patients. Frequent scrubbing of hands should be urged.

Summary:

Tuberculosis is a health hazard in the nursing schools due to the following factors—age, sex, heavy school load, night duty, insufficient rest and sleep, lack of outdoor activities, exposure to diagnosed and undiagnosed tuberculous patients.

Immunization by the use of BCG vaccine is being used abroad. The vaccine is not used in the United States. In the opinion of many of the tuberculosis specialists in this country not enough studies have been made as to the results to warrant its use.

Student nurses are taught how to care for the ill, but know little how to keep well. Positive health preservation should be stressed, in the teaching, as well as negative.

Lightening the student load, encouragement of outdoor activity, frequent, periodic physical examinations with X-ray of chest, fluoroscoping or X-raying of newly admitted patients to rule out the presence of tuberculosis, the segregation of the tuberculous patients, carrying out of isolation and aseptic technique, will tend to reduce the incidence of tuberculosis among student nurses.

* * * * *

REPORT OF COMMITTEE ON CHILDHOOD TUBERCULOSIS

I would like to submit the brief report of the activities of the Committee on Childhood Tuberculosis of the American School Health Association. Since the report made at the 1942 meeting held in St. Louis, the main activity of the Committee has been with reference to developing standards preparatory to certifying individual schools or school systems. Considerable correspondence has been carried on with various members of the Committee and each one has suggested minimum standards that might be used as requirements for certification.

We have sub-committees in each state, and some of them have been asked to prepare standards which they think would be satisfactory for their states. Obviously, standards will differ somewhat in the various states because of the differences in prevalence of the disease. The sub-committee of one state has already submitted its proposed standards; however, the Committee on Childhood Tuberculosis has preferred to wait for other reports before attempting to set up final standards for the various states.

The work has been retarded considerably because so many physicians have entered the military service, and those who are left at home are overworked with routine. We hope that we can have a more complete report in 1944. J. A. Myers, M.D., Chairman.

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EDITORIAL

"Whither goest thou?"

The need for a safe and adequate answer to this question stares in the face not only thinking members among the instructors and directors of physical education, but the medical profession and those responsible for that part of the war effort that has to do with "conditioning" men. For a generation, led and coerced by a lackadaisical educational program, the physical education program in the schools had neglected the most effective body building, strengthening, and conditioning exercises because educational theory was based largely on the idea that children should not be "required" to do anything that they did not desire to do. Instead of clearing the highway of obstacles even at the expense of real work—physical and mental—we were permitting children to detour or otherwise to dodge difficulties.

Then came War—war of a peculiarly deadly sort, requiring a degree of mental and physical conditioning far beyond any previous experience of civilized(?) man—if we except our pioneer ancestors who by "sweat and blood" made the settlement and development of this country possible.

We found that, even to a greater degree than in 1917, "crude masses of untrained and underdeveloped men had to be made quick and accurate in response to command and given that control of

their bodies that is the true function of physical education in its highest sense".[1]

The various armed forces have devised a program to accomplish this, but at considerable loss of man power. When we crowd a life time of "conditioning" into a thirteen week "basic training period" a considerable proportion of our young men exhibit signs of physical and even mental "breakdown" and have to be reclassified into a non-combatant status or even discharged from the service.

Why should we, when a war emergency arises, be faced with this need? Why should we not have a program in education that would keep our youth "conditioned" as they grow?

We are not arguing for a program in physical education made up wholly of intensely formalized activities, but we do argue against pap in education, physical or mental. We are wholly opposed to a program that trains only in certain skills, and conditions only enough for carrying on those skills. This applies whether such narrow program devotes itself almost wholly to croquet, archery, dancing, running, basketball, football, or any other activity or sport or type of sport. Most sports—and they are of great value as a *part* of physical education—do not wholly condition. We are sickened by the release from military service, on the basis of physical disability, of prominent professional baseball, hockey, or football players who immediately return to their lucrative jobs. A system that causes or permits such conditions is both unsocial and unpatriotic.

On the other hand, there is likely to be a definite danger to men in civil life, raised under the weak program prevalent during the last twenty years, who see the splendid results on our young men of a vigorous physical activity program and therefore estimate that "what is sauce for the goose is sauce for the gander", and start at the age of thirty-five or more an extremely severe program of "conditioning" although they are at an age when their metabolism and organs do not accommodate themselves to this suddenly increased load. Moreover, many of them continue their dangerous habit of taking practically all their physical activity in one day at the week end. Not only are these week end athletes far below their normal efficiency on Monday, but they are heading definitely for overstrained hearts, deteriorated kidneys, and other

(1) R. Tait McKenzie, M.D., in Editor's Preface to "A Guide to the History of Physical Education" by Fred Eugene Leonard, A.M., M.D. Lea and Febiger, Philadelphia 1923, page VII.

evidences of overladen circulatory systems. Play is the essence and has a place, but it must be supported on a foundation of work —physical and mental.

May we come out of this War with a firmly ingrained concept that a country created, built, and expanded by work—physical as well as mental—can be maintained only if vigorous physical and mental work is a constant large element in our educational procedures! C. H. K.

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WILLIAM A. HOWE AWARD

At the Annual meeting of the American School Health Association at New York on October 11, 1943, the William A. Howe Award was given to **Lyman W. Childs, M.D.** of Cleveland for long and meritorious service in the field of School Health. Dr. Childs, a former President of the Association, was for many years Director of the school health services in the public schools of Cleveland, Ohio. He was retired from active school service a number of years ago.

The Award was well deserved by Dr. Childs.

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ABSTRACTS

Fads and Fables About Milk,—Science explodes absurd notions about milk and proves their utter lack of foundation. Do you still cling to these fallacies?

1. *Should Fish and Milk Be Taken at Same Meal?* No facts of physiology or food chemistry substantiate the milk-fish fallacy. Experience of years disproves it. It probably originated in days before refrigeration when people who became ill from eating fish, which was not strictly fresh, chanced also to drink milk at the same meal.

Scientific authorities remind us that foods are made up of chemically inert substances and react with each other little, if at all, when mixed in the stomach. The idea of their combining to form mysterious poisons in the body is the product of a lurid imagination unhampered by facts.

Government nutritionists expose the inconsistency of those who avoid fish and milk combinations. Such faddists, they point out, "will eat fish chowder, made with milk, but seem afraid to drink milk at a meal where they have, say, fried fish. They may not worry about crab, lobster, or shrimp when served a la Newburg, but they shudder if ice cream is served after any sea food."

2. *Is Milk Fattening?* No one food is more "fattening" than any other food. An equal number of calories of lettuce and of lard, for example, produce exactly the same amount of energy and therefore are capable of producing the same amount of body fat.

The term "fattening" has come to be accepted as applicable to all concentrated foods, especially those which have high fat, sugar or starch content. This term is legitimate only in the sense that small quantities of such foods yield a high caloric return and any excess of them soon leads to overweight.

Just why milk is popularly considered "fattening" is difficult to understand. The percentage composition of milk—87% water and roughly 4% each of protein, fat and carbohydrate—is concrete evidence of the fallacy of this common belief. Milk ranks in water content with fruits and vegetables—foods always recommended for reducing diets (cabbage 86% water; carrots 88%; apples 85%; oranges 80%).

3. *Should Milk and Acid Fruits be Taken at Same Meal?* Fruit causes milk to curdle in the stomach is the objection often raised to taking acid fruits and milk at the same time. As a matter of fact, the first process of digestion is curdling, and the gastric juice in the stomach is largely responsible for this change.

The curd which results from a mixture of fruit acids and milk is much finer and therefore easier to digest than the milk curd formed with acid found normally in the stomach. The milk and fruit combination is therefore to be desired rather than avoided. Buttermilk and other types of soured milks have been used in child feeding for years.

Present-day methods of infant feeding disprove the fruit-milk fallacy. Doctors report as many as four acids used in this country for the artificial acidification of cow's milk for infant feeding.

4. *Is Milk Constipating?* "The statement that milk is constipating is, I believe, a slander against a very important food," says a nationally known physician whose experience and standing give weight to his assertion. The fact that this defense of milk would be considered necessary in a book, widely used by the medical profession, however, is proof that milk is still believed by many to contribute to constipation.

This belief has become so firmly grounded that it merits scrutiny. Milk is a liquid, quickly and thoroughly digested. It contains no roughage and is therefore completely absorbed. Consequently it contributes no residue which can aid in the general process of clearing the intestines.

Milk therefore functions best when combined with other foods in a mixed and balanced diet containing a variety of fruits, vegetables, and other foods which provide residue so important in a properly functioning intestine. Milk, then, cannot be considered constipating if taken in its proper place, in a varied diet.

5. *Should Milk be Sipped Slowly?* It has always seemed so reasonable to believe that sipping milk should favor its digestion that the idea has gained a foothold. Often otherwise well-informed persons advocate sipping milk as preferable practice to drinking it naturally. Fortunately in this case research studies reveal the facts.

It has been shown that milk taken very slowly forms a larger curd in the stomach and therefore actually requires longer to digest than when taken rapidly. Essentially the same results are obtained in laboratory experiments.* National Dairy Council, Chicago.

*Many athletes (and coaches) hold to the superstition that a man in training should not drink milk. They say "it slows a man up". To be sure, a large glass of milk taken just before a race or a strenuous game would tend to make a man slow, but so would an equal volume of water taken at a similar interval before a contest. Ed.

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The Lure of the "Letter",—Some high school boys are almost fanatical in their desire for recognition as superior athletes. Such a boy apparently lives for one thing only—to get his Letter. Nothing else matters that doesn't contribute to this end. Often his father, who may have been an athlete of sorts, prods and spurs the boy on to athletic glory. Sometimes a coach, consciously or unconsciously, supplies the maggot that gnaws at the pupil's ambition to be a hero of gridiron or track.

Such an overweening ambition cannot be thwarted without causing bitter disappointment at least, and often a severe psychic blow. It happens sometimes that a school physician finds a heart murmur or some other suspicious sign in such a boy and recommends suspension of athletic activities pending more thorough investigation and study. Consternation then reigns supreme, and an agonizing time is enjoyed by all concerned in this minor crisis—which to the boy, and often to the family, looms up as a calamity.

If the boy is found to be physically sound, the storm abates and the sun shines again. But if not, the clouds hover gloomily over a blighted career.

Often these boys—even if the heart is organically sound—are the very ones who should not be pushed to the limit of their physical endurance. They are usually high-strung, temperamental, un-

stable youths with rapid pulse and, frequently, high blood pressure. If they are to develop into stable, dependable citizens their nervous and circulatory systems need protection instead of exploitation, particularly during the period of active growth and development. Otherwise some of them may suffer mental breakdowns or die of high blood pressure complications in middle age.

Such pathological devotion to a "Letter" should be discouraged. Desire for recognition as a basketball or football star should be tempered with common sense, and athletic prowess should be viewed in its proper perspective and with a sense of proportion. Editorial, Health Education Journal, Los Angeles City Schools, October, 1943, p. 11.

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An Efficient Health Examination Plan,—A new program of health examinations for children in the kindergarten through ninth grades, put into effect a year ago at the State Teachers College Elementary School at Mankato, Minnesota, is proving successful. Anna M. Wiecking and Johanna Weblemoe report on it in a recent issue of the Minnesota Journal of Education.

Based on cooperation between parent, teacher, doctor, and nurse, the plan requires each child to pay 50 cents every year, whether he is given an examination that year or not. As this fund accumulates, it provides the opportunity of giving each child a thorough examination once every three years with adequate follow-up, and also permits examination for a few emergency cases from grades where the examination is not to be given that year. Thus, the child continues to get his money's worth even if he has no examination for an interval of three years, for he still receives attention from the health department and additional checking by nurses, and an emergency examination out of turn, if necessary.

Because of the merits of the conference type of examination, where teacher, parent, doctor, and nurse confer and plan together, parents are encouraged to use the school doctor rather than the family physician, although they may refer the remedial program to the home doctor as they see fit. Here's how the plan actually functions:

Early in the fall a nurse and teacher, working with the audiometer, check on heights, weights, vision, and hearing, and discuss with the doctor the teacher's record of such matters as eyestrain, posture, emotional problems, and general behavior. The doctor examines eyes, ears, nose, throat, mouth, lungs, skin, abdomen; notes body deformities and posture; and prescribes laboratory tests if necessary.

There are several others who help the nurse and doctor:

1. An assistant nurse who meets the parent and fills out or discusses with him the information in the family folder—ages and occupations of the members of the household, their health problems, economic factors, etc.

2. The teacher who is present when the child is examined, to contribute her knowledge of the child, discuss the record which she has provided, and participate in the nurse-parent conference at the end of the examination. Sometimes another teacher helps too, on examination days.

3. Two stenographers who take the doctor's dictation on the health cards.

Conducted in this way, the authors point out, the clinic has met with approval on all sides, and valuable experience gained from it may well lay the foundation for an even better one in the future. School Management, Sept. 1943, p. 27.

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Health Progress.—In its Statistical Bulletin for March, 1943, the Metropolitan Life Insurance Company reviews health conditions among the policy holders during the seventy-five years of the existence of the company. The bulletin points out that the death rate that prevailed in 1868, the year in which the company was chartered, would, under present standards, apppear calamitous. In that year the death rate in New York City was 28 per thousand, nearly three times as high as the present rate. During the period from 1879 to 1889, the expectation of life at birth among the policy holders was 34 years; in the years 1911-1912, it was 46.6 years; in 1919-1920, 51.1 years; in 1930, 57.4 years, and in 1942, 64.1 years. The gain in expectation of life from 1879 to 1942, was over 30 years and the gain from 1919 to 1942 was 13 years. If we assume that the period of productivity for a man begins at age 18, it will be noted that the average years of productivity increased from 16 in 1879, to 46 in 1942. The economic effect of the prolonged period of productivity naturally has been very great.

During the 75 years reviewed, health gains have been made in every period of life from birth to 65 years of age. The greatest gain has been made in the early years of life. The communicable diseases of childhood that formerly were responsible for many deaths have been greatly reduced. Some of these diseases have been almost entirely eliminated. The conquest of diphtheria is a striking example of what has taken place. Other diseases that affect both young and old, such as tuberculosis and pneumonia, have been les-

sened and a much smaller percentage of the cases proved fatal.—From Mental Hygiene News, June, 1943, p. 2.

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Tetanus Toxoid.—Tetanus Toxoid: Its Use in the United States Army, Am. J. Pub. Health 33:35 Jan., 1943) is to give two initial doses of fluid toxoid three weeks apart, a stimulating dose one year later or on departure for a theater of operations, and an emergency stimulating dose on the occurrence of wounds, severe burns or other circumstances in which the danger of tetanus is a possibility.— The Journal of the American Medical Association, June 19, 1943, p. 559.

The question of whether to depend in a given case on a previous active immunization or to administer a prophylactic dose of tetanus antitoxin is a matter for surgical judgment. Certain general principles, however, can be laid down for guidance. It is now generally agreed that administration of two doses of 1 cc. each of alum precipitated toxoid from one to six months apart will produce basic immunity. After such treatment the reactivity of the person is enormously increased so that a subsequent boosting dose of toxoid given three or six months later will increase the antitoxic content of the blood from twenty to fifty times, giving an immunity of a higher degree and longer duration than that which existed before. The duration of immunity has never been definitely established. It may vary from as short a period as three months to a lifetime. A series of three doses in the course of one year will, generally speaking, give an immunity which will last two or more years. Because of the great individual variation in responses, it is always advisable in the face of definite exposure to give a still further dose of toxoid with the view to rapid stimulation of additional antibody formation. It must, however, be borne in mind that formation of antibodies consumes time. For this reason it is always good judgment in the presence of badly macerated tissues to give immediately a prophylactic dose of antitoxin serum while waiting for the effect of the boosting dose of the toxoid. To particularize, it may be stated that the original toxoid immunization should not be relied on as furnishing lasting immunity without further stimulating doses. Semiannual or annual stimulating doses, as suggested in the query, will certainly produce that effect. One certainly would resort to additional doses after eight and fifteen years. There will be occasions when it will be necessary and wise to employ the antitoxin serum in addition to the toxoid immunization. —The Journal of the American Medical Association, June 19, 1943, p. 571.

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Smallpox,—In the case of smallpox vaccination, the medical profession and the public alike are prone to overlook some facts of significance about the importance of smallpox in a community, especially during wartime. A general feeling of false security has apparently become established in the public mind, because of the fact that in certain localities (second-class cities, of which Albany is one), children are required to be vaccinated before admission to school. Thus, the majority of children are never vaccinated until a few days before they are ready to attend school for the first time. This is one great fallacy inherent in any law requiring vaccination or other preventive procedure at a certain age level; as a matter of common sense and sound public health, every child should be vaccinated during the first year of life, and revaccinated every five years thereafter if smallpox is to be completely eradicated.

One may very well reason thusly: if vaccination is a good thing for a five- or six-year old child, then it is vastly more worth while for an infant, whose chance of survival in case of attack is much less than that of a sturdy, well developed older child. Health departments and public health workers are not without blame in the matter, for their complacency traces back to the same fallacious sense of security as that of the general public. Everyone reasons, "Well, we don't have to worry about smallpox, because the law requires that all children must be vaccinated before entering school in our town, so the matter will be automatically taken care of in due time."

The net result of such reasoning is a mad rush to the family physician or to the health department clinic at the very last minute before school opens. This results in a hardship on all concerned. . . .

Yes, familiarity breeds contempt, all right, but it shouldn't in this case. The answer? A well organized and administered health department can accomplish the vaccination of all children under one year by systematic canvass, in any locality with a little effort. —From Albany Health Bulletin.

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NOTES

Hard of Hearing,—A preliminary study of the Committee on the Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology presents suggestion of a plan as follows:

1. Routine testing of all school children at once and thereafter in third, sixth and ninth grades.

2. Bring all cases with defective hearing to the physician for treatment when indicated. Sufficient emphasis has not been placed on remedial measures to arrest the progress of deafness.
3. Provide special education for those with hearing losses which are not sufficiently severe to necessitate institutional training.
4. Detect all cases with severe hearing losses that require training in a school for the deaf which provides vocational training, rehabilitation, and eventually employment for children as they grow into adulthood.

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Removal of Adhesive Tape,—To the Editor:—I have observed industrial medical departments using benzene for the removal of adhesive tape. It is obvious that this is a bad practice as it exposes the nurse who employs this technic to the inhalation of toxic concentrations of benzene vapors. A death from chronic benzene poisoning occurring in a switchboard operator who over a period of years had used benzene on a rag to clean her switchboard has previously come to my attention. I should appreciate an opinion from you as to the dangers of this procedure and as to the most satisfactory safe solvent which could be used as a substitute. L. M. Petrie, M.D., Atlanta, Ga.

Answer.—Chronic benzene poisoning has been produced in workers exposed repeatedly to low concentrations of this substance, and for this reason it is not believed that benzene is a satisfactory material for the removal of adhesive tape in dispensaries and hospitals. It is, of course, necessary to use a material which is a good solvent for the adhesive in the adhesive tape and at the same time a substance which is relatively nontoxic and which possesses a somewhat high flash point in order to obviate the possibility of readily taking fire.

A solvent which answers these requirements is Stoddard solvent, or high flash naphtha. Stoddard solvent is a straight-run petroleum naphtha and possesses a flash point above 100 F. Stoddard solvent is used to a great extent in the dry cleaning industry as a substitute for carbon tetrachloride because of its nontoxic properties and its high flash point. Journ. A.M.A., Oct. 16, 1943, p. 448.

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Training in Health Education, — Five brothers and two fathers, members of religious orders, will receive one year's training in health education and public health at Yale University School of Medicine, New Haven, under a cooperative program with six

teaching orders with Dr. Jules A. Gilbert, Granby, Que., director of public health education, and with the financial assistance of the Ministry of Health, Quebec. On their return to Quebec the seven will devote themselves primarily to school health education work in the normal schools of their respective orders, in cooperation with the ministry of health. Journ. A.M.A., Oct. 16, 1943, p. 428.

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MEETINGS

American Association of School Administrators,—The annual meeting of this Association is to be held in sections in different areas of the United States as follows:

Seattle, Washington, January 10-12
Atlanta, Georgia, February 16-17
New York, New York, February 22-24
Chicago, Illinois, February 28-March 1